

# CS360 Introduction to Database Homework 1

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**Q-a.**  $\tau_{Name}(\pi_{StudentID, Name}(\sigma_{Department='ComputerScience'}(STUDENT)))$

**Q-b.**  $\delta(\pi_{StudentID}(\sigma_{Classroom='E11,402'}(TAKES \bowtie COURSE)))$

**Q-c.**  $\pi_{StudentID}(\sigma_{Semesters < 4}(STUDENT)) \cap \pi_{StudentID}(\sigma_{CourseNo='CS360'}(TAKES))$

**Q-d.**  $\pi_{StudentID, Department}(STUDENT) - \pi_{StudentID, Department}(STUDENT \bowtie TAKES)$

**Q-e.**  $\sigma_{NumberTakes \geq 3}(\gamma_{StudentID, COUNT(CourseNo) \rightarrow NumberTakes}(TAKES))$